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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/579,401

Applicant(s)

EBLE ET AL.

Examiner

Andrew Janca

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-5, 7, and 9 have been fully considered but are not persuasive. The amendments to the claims do not remove the cited prior art from their scope.
2. Regarding the 102 rejections over Nielsen (Remarks pp 4-6) Applicants argue that Nielsen does not teach that the liquefied phase and the ice be of essentially the same composition (Remarks p 5 para 2). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the liquefied phase and the ice be of the same composition) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
3. Further regarding the 102 rejections (Remarks p 5 para 3) it is unclear how Nielsen's drum 4-5 could not be said to be a horizontal mixer: it is a mixer, and it is horizontal (Nielsen figure 1). It possesses horizontally arranged stirrers 5 which stir the contents and which rotate around a horizontal axis. Additionally, by heating the stirrers 5 which are part of the mixer, Nielsen teaches the mixer is heated: the heat does not dissipate to the outside having no effect upon the mixer's interior, but is effectively communicated to those contents to heat and thaw them (5:23-24). It is also unclear how having part of the heat transfer from the stirrer to the ice be effected by

communication through the liquid phase rather than completely by contact with the heated elements (Remarks p 5 para 5) would exclude Nielsen from the scope of the claimed invention, in particular since this dual heat transfer is the mode of action of Applicants' own apparatus (3:36-4:4).

4. Regarding the 103 rejections over Foster in view of Dyer (Remarks pp 6-8) the snow of the Foster reference is continually submerged in the liquefied phase and mixed with it, as it is circulated in a submerged state (Remarks p 6 para 5). Claim 1 recites not that the pieces of ice circulate between a floating state and a submerged state, but that "**any** floating pieces of ice are continually submerged in the liquefied phase and mixed with it". If no pieces of ice float, then any floating pieces of ice are continually submerged in the liquefied phase and mixed with it. Further, since Foster's pieces of ice continue to be submerged in the liquid phase, they are continually submerged in it.

5. Applicants further argue that Foster and Dyer can not be considered analogous arts (Remarks p 7), noting that problems with prior art apparatuses like Foster's is that it is possible that ice pieces may freeze together and form a coherent mass rotating with the stirrer without any relative motion; further, that it is possible that material experiencing the phase change might be subjected to excessive thermal stress (Remarks p 7 para 5). However, these problems are pertinent precisely to apparatuses designed for stirring material undergoing a phase change, such as rotary shaft mixers suited for stirring a substance both in its liquid and solid phases while undergoing a phase change and in particular to ensure constant circulation of the crystalline phase through the thawing zone of the mixing chamber--the common problem solving area of

the apparatuses and methods of Foster and Dyer as noted in the rejections of the prior action, repeated below. Dyer's crystallization (Remarks p 8) is a change in phase from a liquid-based solvated phase to a solid phase.

6. Regarding the additional remark p 8 para 5 that "It should be further noted that Applicants' claimed invention as well as the teaching of the Foster reference particularly pertain to thawing and not to any apparatuses employed therein," this is considered an admission on the record that the one particular detail of the apparatus distinguishing the apparatus of Foster from the apparatus disclosed in the instant specification, that is its horizontal rather than vertical orientation, may be considered either a design feature or a simple choice of spatial orientation which would be obvious to one of ordinary skill in the art to attempt or select.

7. Regarding the remarks p 9 paras 3-4, as noted in the prior action (para 19) Lücke teach a mixing mechanism 2 for a mixing machine *designed for heterogenous mixing, that is of one substance present in both solid and liquid phases* (2:5-9), which makes it analogous art to Foster and Dyer: Applicants in citing this portion omit the significant portion which is emphasized above. The cited passage 2:5-9 discusses the prior art only in the context of its shortcomings in effecting the technical tasks of its field, as an introduction to the apparatus which the inventors present as an improved apparatus for effecting those same tasks (Lücke 5:11ff).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3, 5, and 9 are rejected under 35 USC 102(b) as anticipated by WO 2003/032740 A1 to Nielsen.

10. With regard to claim 1, Nielsen teaches a method of thawing pieces of ice which contain protein-containing products and water (1:4-5), which comprises introducing the pieces of ice 2 into a horizontal mixer 4-5, said horizontal mixer comprising at least one stirrer 5 whose axis of rotation is arranged horizontally, heating the horizontal mixer and at the same time mixing the contents of the mixer to maintain the temperature of the contents of the mixer at a temperature which is less than 10° C above the melting point of the ice (5:20; claims 1 and 5), whereby the pieces of ice are melted to form a liquid phase (2:8-10, 2:25-26)—since Nielsen teaches a marinating process at least some of the liquid water within the meat chunks joins the continuous phase of the liquid brine—and during such melting, any pieces of ice are continually submerged in the liquefied phase and mixed with it (figures 1-3; 5:1ff).

11. The additional elements of claim 3, including that the horizontal mixer has mixing elements 5 which have internal heating, are taught by Nielsen (figures 3-4; 5:7-16).

12. The additional elements of claim 5, including that the protein-containing products are protein-containing products from natural biological sources or from a biological process, are taught by Nielsen (1:4-6).
13. The additional elements of claim 9, including that the said temperature may be maintained at less than 5° C above the melting point of the ice, are taught by Nielsen (5:20; claims 1 and 5).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
16. Claims 1, 4-5, 7, and 9 are rejected under 35 USC 103(a) as unpatentable over US 4,638,048 to Foster in view of US 607,228 to Dyer.

17. With regard to claim 1, Foster teaches a method of thawing pieces of ice which contain protein-containing products and water (2:17-18), which comprises introducing the pieces of ice into a mixing cylinder 20 (3:24-26), heating the mixer (1:63-67) and at the same time mixing the contents of the mixer to maintain the temperature of the contents of the mixer at a temperature which is less than 10° C above the melting point of the ice (2:32-37), whereby the pieces of ice are melted to form a liquid phase and during such melting, any pieces of ice are continually submerged in the liquefied phase and mixed with it (2:16ff; figures 2-3). It should be noted that the apparatus of Foster superimposes a local recirculatory mixing motion for mixing the two phases (1:64, 2:18-23) upon a global continuous flow of the frozen and thawed plasma from an inlet to an outlet (2:25-44; claim 1). Foster does not teach that the cylinder may be oriented horizontally. However, Dyer teaches a rotary mixer with a central shaft D and helical mixing elements E-F, being a horizontal mixer comprising at least one stirrer D-E-F whose axis of rotation is arranged horizontally, said horizontal mixer designed for mixing a substance present in both liquid and frozen phases during the substance's transition from one phase to another (1:11-20), which is disposed horizontally with the shaft parallel to the ground (figure 1). Foster and Dyer are analogous arts, being from the same problem-solving area, the design of rotary shaft mixers suited for stirring a substance in both its liquid and solid phases while undergoing a phase change, in particular ensuring constant circulation of the crystalline phase through the thawing zone of the mixing chamber (Foster 1:64-67; Dyer 1:15-17). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to orient the

mixing cylinder of Foster parallel to the ground, that is horizontally rather than vertically, as does Dyer; the motivation would have been because a horizontal orientation allows for continual and symmetric recirculatory mixing of the thawing zone's contents from its central portions outward to its peripheral portions to ensure that the whole charge is kept in a constant state of movement, in other words enhance the recirculatory mixing effects of the fluid contents of the thawing zone (Dyer 1:21-55).

18. The additional elements of claim 4, including that said horizontal mixer has wiping elements 27 traveling around the wall thereof, are taught by Foster (4:3-9; figures 2-3).

19. The additional elements of claim 5, including that the protein-containing products are protein-containing products from natural biological sources or from a biological process, are taught by Foster (1:14).

20. The additional elements of claim 7, including that the horizontal mixer may be operated continuously, are taught by Foster: Foster teaches a continuous recirculatory motion for mixing the two phases (1:64, 2:18-23) superimposed over a global continuous flow of the thawed plasma from an inlet to an outlet (2:25-44, claim 1).

21. The additional elements of claim 9, including that the said temperature may be maintained at less than 5° C above the melting point of the ice, are taught by Foster (2:32-37; claims 4-5).

22. Claims 2 and 3 are rejected under 35 USC 103(a) as unpatentable over Foster in view of Dyer as applied to claim 1 above, and further in view of US 4,233,676 to Lücke et al.

23. With regard to claim 2, Foster teaches a cylindrical mixer 31 for heating and cooling fluent materials, having a longitudinal shaft 29 and blades 28 for scooping the fluent contents of the vessel and ensure circulation 4:2-9; figure 3), as does Dyer; but neither Foster nor Dyer not teach that the horizontal mixer may be a disc or ploughshare mixer, or that the mixing elements may have internal heating. However, Lücke teach a mixing mechanism 2 for a mixing machine designed for heterogenous mixing, that is of one substance present in both solid and liquid phases (2:5-9) having a longitudinal shaft 3 inside a cylinder 1, and mixing arms 4-5-6 or partial discs 8-9 for locally mixing substances having a continuous (1:33-38) globally directional fluid flow (2:47-60) as they are heated or cooled (1:53-57); and further teaches that the arms 4-5-6 may be ploughshare mixing arms (4:3), having also partial disks 8 or 9 (4:9-17; figure). It would have been obvious to one of ordinary skill in the art to provide ploughshare mixing arms to the mixer of Foster and Dyer, as do Lücke: the motivation would have been to thoroughly mix the contents for the local mixing action (Lücke 1:13-22, 3:63ff) taught by Foster. Alternatively, or in concerted addition to the ploughshare mixing arms as taught by Lücke, it would have been obvious to provide the disk mixing elements of Lücke to the mixing shaft of Foster: the motivation would have been to convey in a measured fashion the thawing contents of the mixing tank for the global conveying action taught by Foster, while leaving enough residence time for the local mixing action to take place (Lücke 2:30ff).

24. With regard to claim 3, Lücke further teach that the mixing elements may have internal heating (2:61-69, 4:18-31; figure). It would have been obvious to one of

ordinary skill in the art to provide internal heating to the mixing elements of Foster and Dyer, as do Lücke: the motivation would have been to ensure optimum contact between the material and the heating surface (Lücke 1:63-3:2).

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Janca whose telephone number is (571) 270-5550. The examiner can normally be reached on M-Th 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJJ

/DAVID L. SORKIN/
Primary Examiner, Art Unit 1797